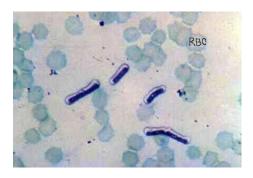


Anthrax Fact Sheet October 2007

Introduction

Anthrax is a potentially fatal disease of all warmblooded animals, including humans. The disease is caused by the spore-forming bacterium *Bacillus anthracis*. Species susceptibility varies. Cattle, sheep and goats are considered highly susceptible and birds are highly resistant. In animals, transmission occurs by ingestion and possibly by inhalation of spores. Anthrax is particularly common in parts of Africa, Asia and the Middle East. Anthrax outbreaks in the United States occur most often in the Midwest and West. US outbreaks in 2007 have occurred in the Dakotas, Texas, Minnesota, Montana, and California.



Anthrax Agent

Anthrax bacterium is found in two forms, the vegetative form and the spore form. The vegetative form grows and reproduces within the animal. Toxins produced by the vegetative form cause the disease. Within a few days of death, the vegetative form is destroyed during the rapid decomposition of the unopened carcass.

If the vegetative form of the organism is exposed to oxygen, sporulation occurs. The spore form contaminates the environment and may remain viable in the soil for decades making eradication difficult. Spores can survive two years in water and 10 years in milk. Spores are highly resistant to the following:

- □ Heat
- □ Cold
- Chemical disinfection
- Long dry periods

Transmission

Animals are typically infected by ingestion of soilborn anthrax spores. Spores can be picked up directly from the soil through grazing or from feed grown on infected soil. Once ingested, spores revert to the vegetative form and produce toxins within the animal. An increased incidence of anthrax exposure occurs:

- After flooding of the grazing area
- □ Following a drought
- □ After disruption or tilling of the soil

Occasionally, inhalation of spores can cause disease in animals. Susceptible species may also develop a localized infection caused by exposure through breaks in the skin.

Clinical Signs in Ruminants

Ruminants are most susceptible to anthrax. The disease has a rapid onset after exposure. Sudden death may occur without observation of other clinical signs. Staggering, trembling and difficulty breathing may be seen in some animals, followed by collapse, terminal convulsions and death. Infected animals bloat rapidly at the time of death, and there may be a dark bloody discharge from the mouth, nose, anus or vulva. A most notable sign of anthrax is the lack of rigor mortis (stiffening of the body).



"If a bloated cattle carcass is found that has not undergone rigor mortis and has dark bloody discharge from body openings, suspect anthrax. Take precautions and call your veterinarian or animal health official."

Clinical Signs in Horses

Horses typically develop acute disease after ingestion of anthrax spores. Common symptoms of the disease in horses include:

- □ Fever
- Chills
- Anorexia
- Depression
- □ Colic
- Bloody diarrhea

Swelling of the neck, sternum, lower abdomen and external genitalia may also be seen. Affected animals usually die within 1-3 days; some affected horses may survive up to a week.

Clinical Signs in Swine

Pigs infected with anthrax may have mild to chronic infections characterized by localized swelling in the neck. Systemic signs include:

- □ Fever
- Loss of appetite
- Enlarged lymph nodes

Some animals may develop progressive swelling of the throat resulting in difficulty breathing and swallowing. Some pigs with anthrax do recover. Recovered asymptomatic pigs may have signs of localized infection in the tonsils and cervical lymph nodes found at slaughter.

Treatment

Bacillus anthracis is susceptible to a number of antibiotics including penicillin and oxytetracycline. Due to the rapid course of the disease, antibiotics must be given immediately at time the of diagnosis. Supportive treatment may also be necessary. During an outbreak, prophylactic antibiotics may be given to exposed and at-risk animals.

CDFA Animal Health Branch Offices	
Sacramento (HQ)	916-654-1447
Modesto	209-491-9350
Ontario	909-947-4462
Redding	530-225-2140
Tulare	559-685-3500
USDA/APHIS/VS 916-854-3900 or 877-741-3690	

Control

Anthrax is a reportable disease. Quarantines, effective carcass disposal techniques and decontamination are essential to control an anthrax outbreak.

- Affected premises will be quarantined.
- Sick animals should be isolated.
- To prevent spore formation, carcasses should not be opened. Scavengers should be prevented from accessing the carcasses.
- Grazing animals should be restricted from contaminated areas.
- Carcasses and contaminated materials should be properly disposed.

Burning is considered to be the most effective disposal method for anthrax-contaminated carcasses, manure, bedding and other contaminated materials. However, local county regulations govern carcass disposal. After cleaning, a 10 percent sodium hydroxide (NaOH) or a 5 percent formaldehyde solution can be used to effectively disinfect stockyards, pens and other equipment.

Prevention

Use of modified live vaccines can prevent anthrax in livestock. Livestock in anthrax endemic areas should be vaccinated annually.

Zoonotic Potential

Anthrax may cause serious disease in humans. Human cases may develop after exposure to infected animals and their tissues. For additional information on Anthrax in humans, contact your County Public Health Department or visit: http://www.cdph.ca.gov/healthinfo/discond/Pages/Anthrax.aspx